

ESUP-DAYS #23
APEREO PARIS 2017

Learning Analytics

Gary Gilbert – Unicon

A photograph of a waterfall cascading over mossy rocks in a lush forest. The water is white and frothy as it falls, surrounded by green foliage and trees.

Gary Gilbert

- 15 years of Education Technology experience
- Software Architect - Integrations & Analytics
- AWS Solutions Architect
- Technical Leader for the Apereo Learning Analytics Initiative

About Unicon

- Leading provider of technology consulting and design services for the education market
- Enterprise Education Technology Consulting Services

Application Modernization and Optimization

Application Development /Support

Performance and Scalability

Systems Integration

Identity Access Management

Learning Analytics Solutions

Project-Driven Engagement and Support

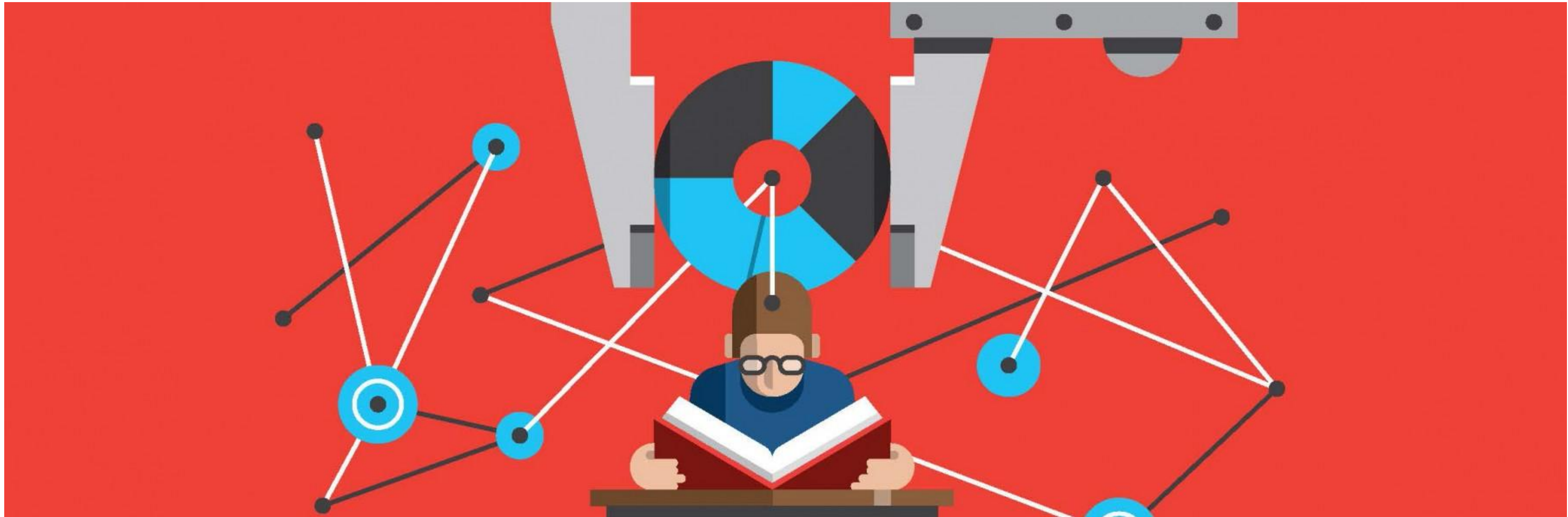
Open Source Software

- Founded in 1993
- Organically funded and grown
- Headquartered in Gilbert, AZ and staffed throughout the U.S

Analytics is kind of a 20-year horizon project in education ...

Rob Abel, IMS Global

What is our purpose?



The REAL Data Revolution,
AGB Trusteeship Magazine, July/Aug 2016, Busted

Learning Analytics focuses on the student; Academic Analytics on the Institution



Learning Analytics

Defined as “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs.”

Focused on the student and their learning behaviors

Primary audiences are students and instructors

Data: Demographics, grades, course outcomes, behaviors, LMS engagement, click paths, time on task

Academic or Institutional Analytics

Defined as a process for providing educational institutions with the data necessary to support operational and financial decision making.

Focused on the business of the institution

Primary audience is institutional management/executives

Data: Demographics, course enrollment, course outcomes, course and instructor evaluations, graduation rates



Strategic drivers differ based on focus



Learning Analytics

- increase retention
- improve employability
- improve student success

Academic Analytics

- improve content
- determine course effectiveness
- improve services and business practices



Learning Analytics delivers holistic support

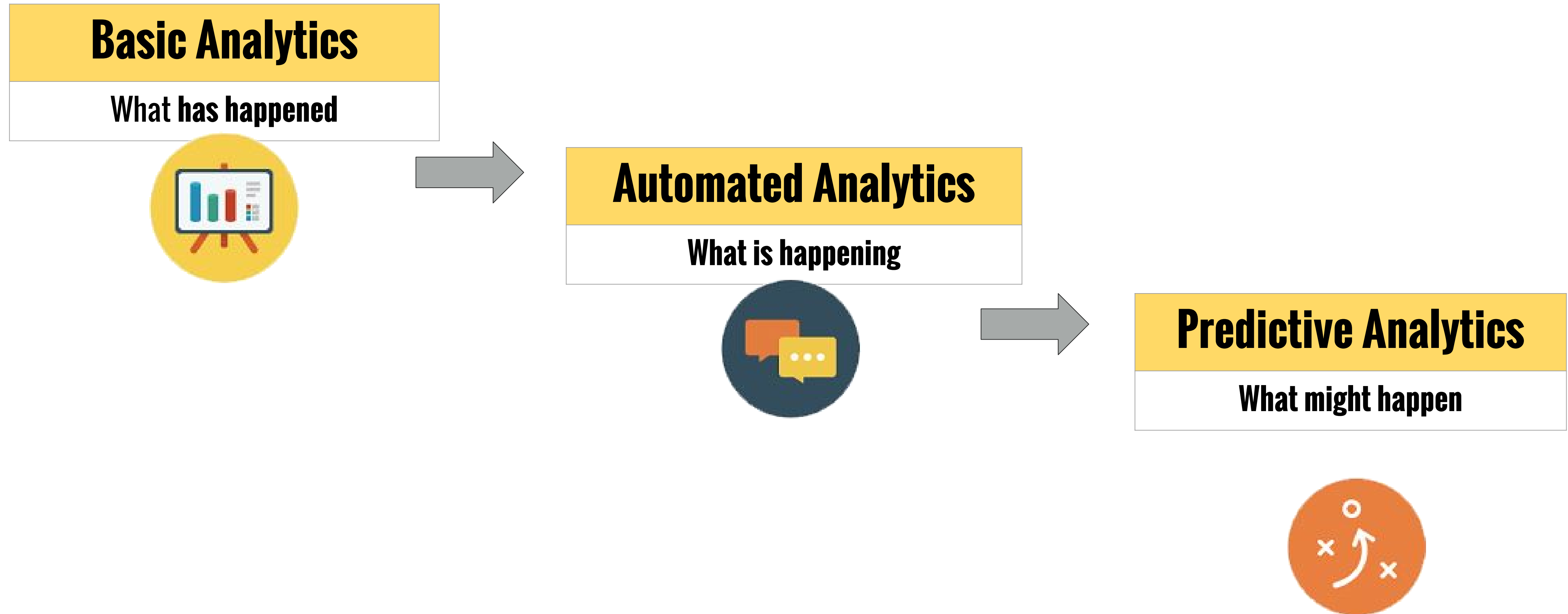
Learning Analytics can...

- Support students along their journeys in a holistic way
- Provide additional information regarding the student to help provide timely interventions
- Provide insight to the institution regarding student behavior, patterns and trends

Learning Analytics “used for good” shouldn’t be...

- A way of profiling students in an unhealthy or unnecessary way
- Solely a means of tracking staff, academics, personal tutors, student support staff, etc.
- A way to only focus on one aspect of the student (e.g. only academic or only behavioral)

Learning Analytics stages get progressively “smarter”



What we're seeing in the education market

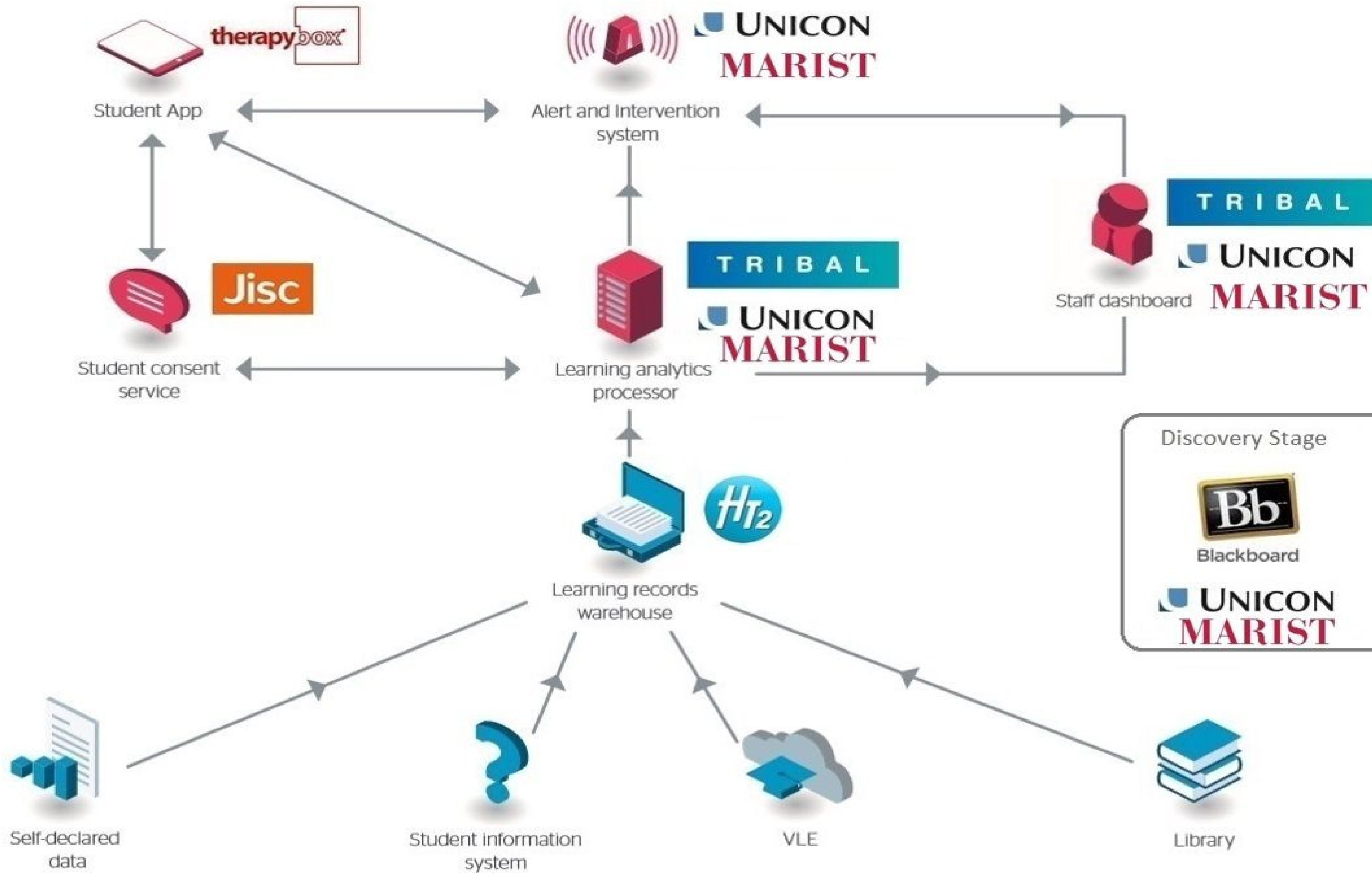
“We need analytics”



Jisc Effective Learning Analytics

- **Jisc - UK non-profit focused on advancing UK Higher Education services and solutions**
- **Jisc and several partners (vendors) are working on a national-scale Learning Analytics and Data Warehousing project**
- **Unicon provides on-boarding support to institutions**
- **Unicon responsible for technical components including:**
 - **API Development**
 - **Faculty / Staff Dashboards**
 - **Predictive Analytics**
 - **Student Retention System**





North Carolina State University

- Moodle LMS
- Hadoop infrastructure to handle scale
- Predictive Model outputs risk score
- Approached model first vs Open Analytics infrastructure

Currently working on Open Analytics infrastructure

The logo for North Carolina State University, featuring the text "NC STATE UNIVERSITY" in white, bold, sans-serif capital letters on a red rectangular background.

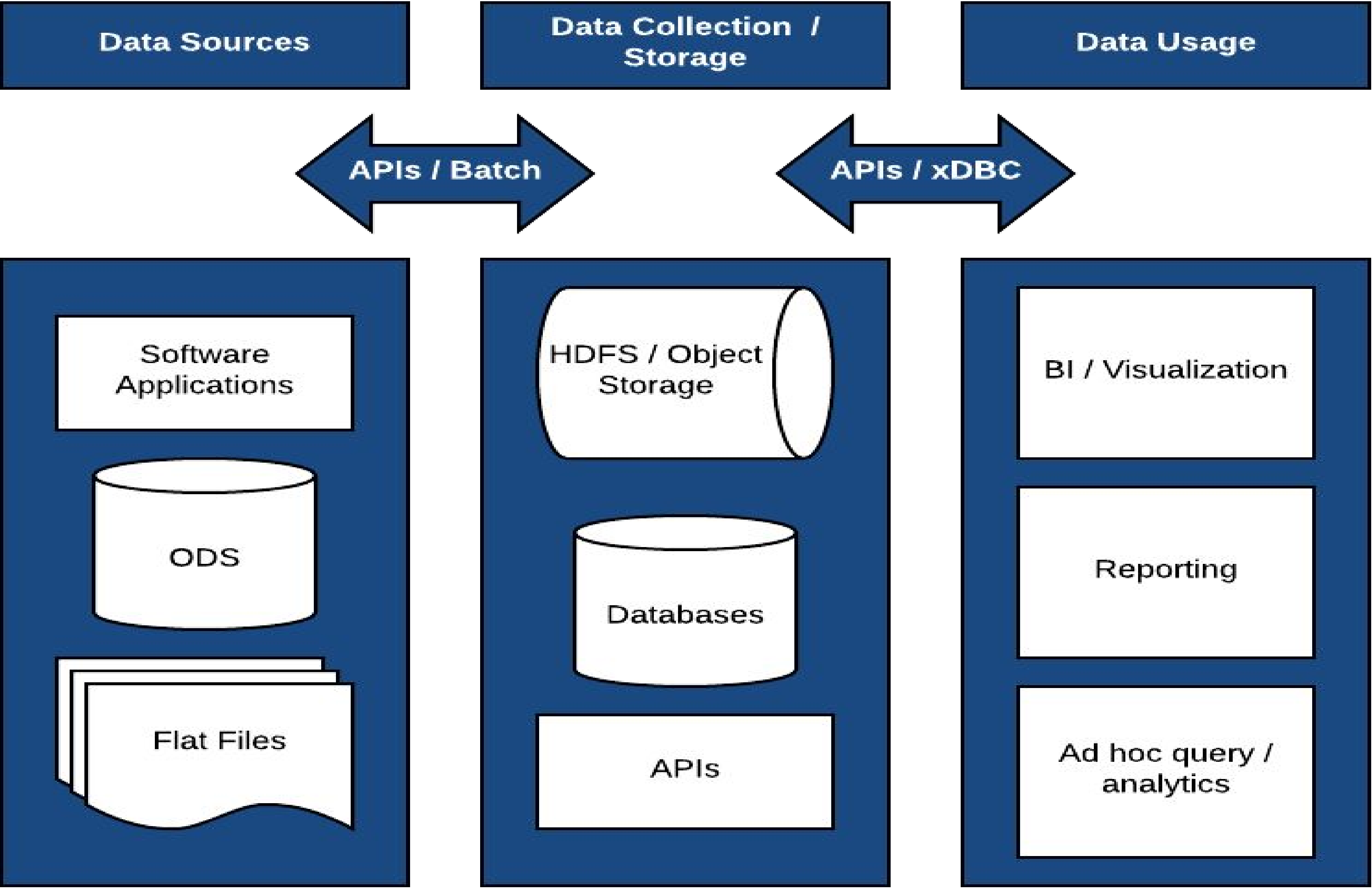
**NC STATE
UNIVERSITY**

Goals of an Open Analytics Infrastructure

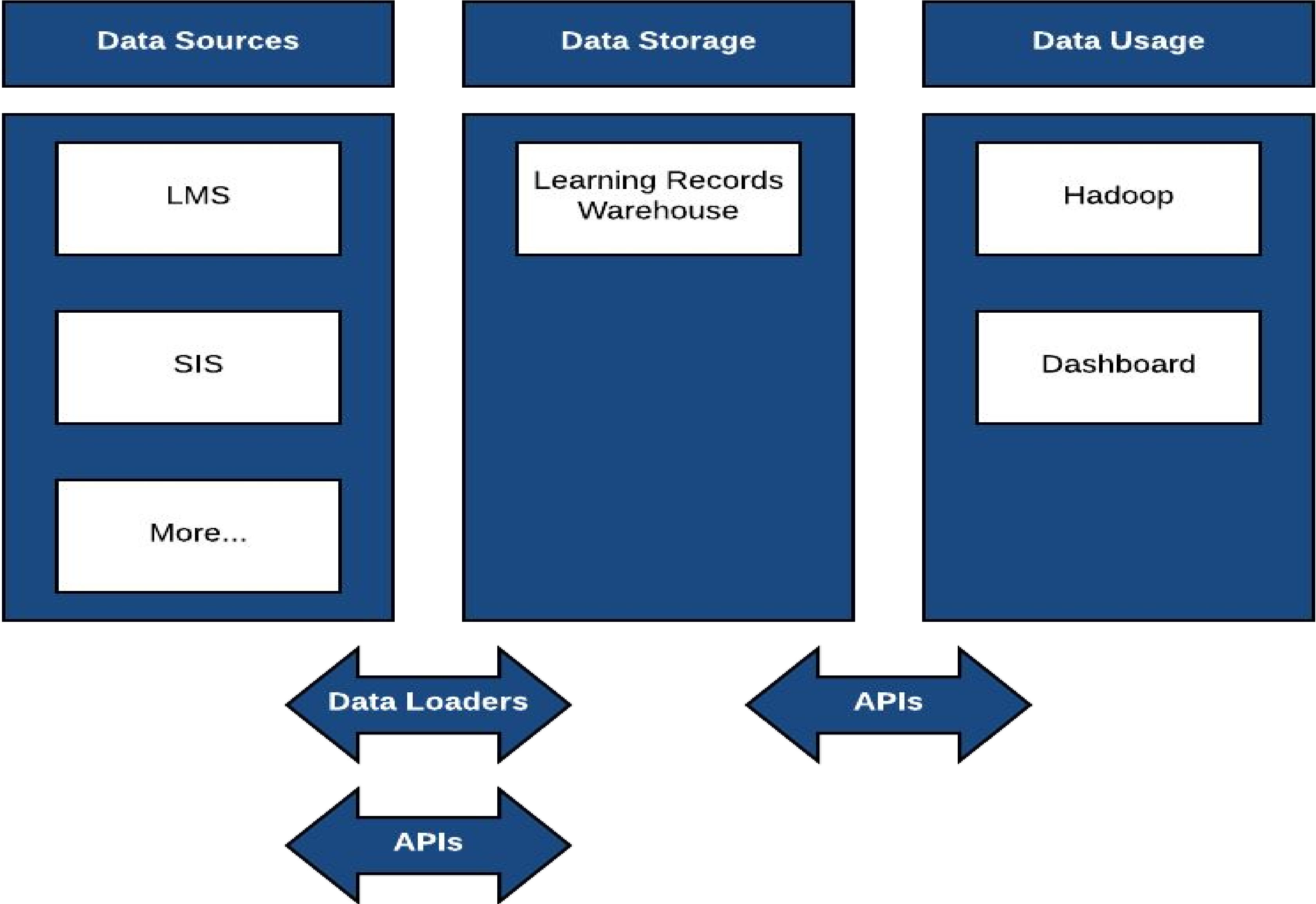
An Open Analytics Infrastructure should support:

- **Collection and Storage of a variety of data**
- **Usage of data for analytics, reporting and visualization**
- **Interoperability through Open Standards**
- **Use of Open Software, Models and Processes where appropriate**

Conceptual View



Open Analytics Conceptual View

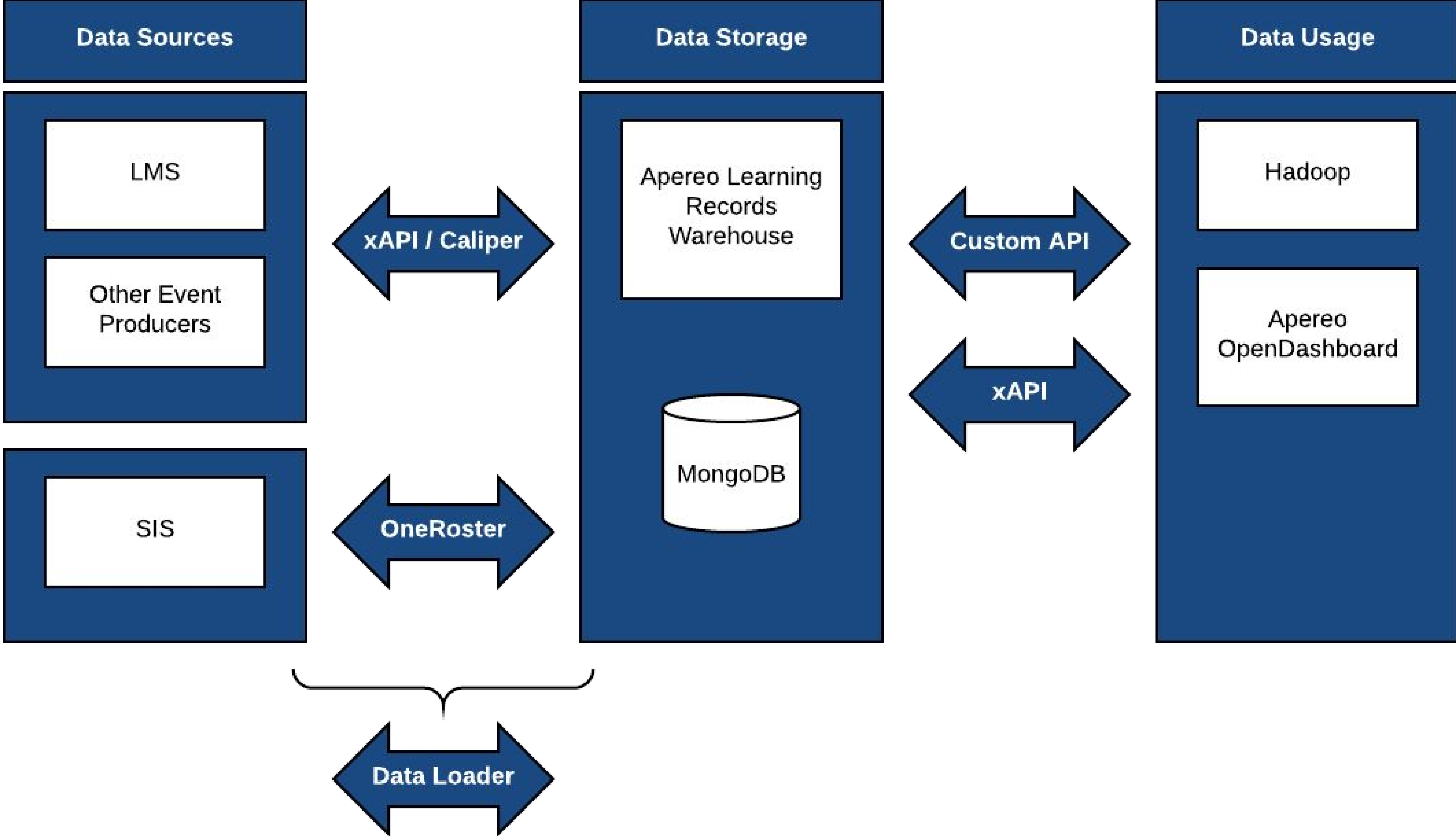


Apereo Learning Analytics Initiative

An open infrastructure for learning analytics

- **Matthews (Event collection & storage)**
- **OpenDashboard (Visualization & reporting)**
- **Student Success Plan (Intervention & case management)**

Apereo-centric Realization



Learning Record Store Warehouse

A standards-based learning records warehouse with support for learning event and supporting data

No longer just an LRS; Includes SIS data

Key Standards

- **IMS Caliper**
- **xAPI**
- **IMS OneRoster**

OpenDashboard

A web application that provides a framework for displaying visualizations and is accessible via IMS LTI

Moving away from a framework to be more of a faculty/staff tool

Data Loaders

How do we get supporting (and maybe event) data into the LRW?

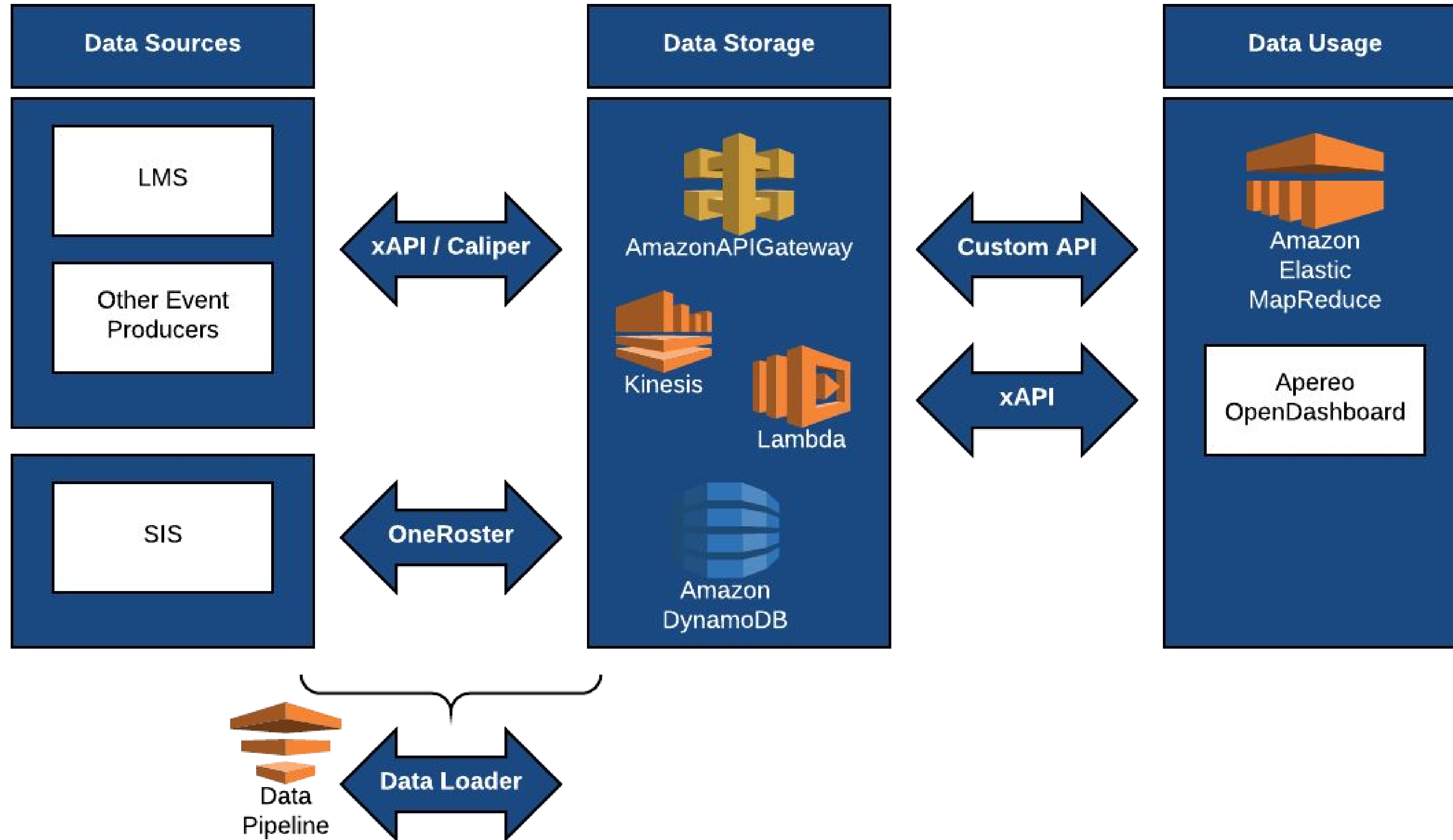
- **Custom applications and processes**
- **Work in-progress on**
 - Moodle
 - Canvas

Student Success Plan Overview

SSP as a Learning Analytics Component

- **Intervention model of Analytics**
- **Tool provider sends learning event to LRS**
- **Data is analyzed, students are classified based on historical results of similar students**
- **Early Alert in SSP for “at risk” students**

AWS-centric Realization



The Year Ahead

- **Stabilize recent development work**
- **Build out the AWS-centric model**

- **Expand the Student Pulse**
- **Develop integrations with LMSs / SISs (Data Loaders)**



“And what he greatly
thought, he nobly dared.”

- Homer